TMDL Implementation Plan for Savannah River, Downstream of Stevens Creek Dam to U.S. Highway 78 -- Dissolved Oxygen

Introduction

The portion of the Savannah River downstream of the Stevens Creek Dam is located next to (to the north and east) Augusta, Georgia. The Stevens Creek Dam is operated by the South Carolina Electric and Gas Company (SCEG) based in Columbia, South Carolina. Reservoir water flows through the turbine generators in the dam to produce hydroelectric power. The water for such use is taken from the lower (hypolimnion) zone of the Reservoir where the water is naturally lower in dissolved oxygen (D.O.).

Plan for Implementation of the TMDL

The TMDL for this and seven other low D.O. river segments below dams, was finalized in November, 2000. The designated use for the Savannah River downstream of the Stevens Creek Dam, is for drinking water (after appropriate treatment in a water plant). The applicable water quality standards there for D.O. are a concentration of 5 milligrams per liter (mg/l) as a daily average and a concentration of 4 mg/l as a minimum value.

Attainment and maintenance of these two D.O. water quality standards are the goals of this Implementation Plan.

The TMDL recommends that the appropriate federal and state agencies work together in developing an implementation strategy to provide higher oxygenated water from these dam releases. The TMDL adds that these strategies may include oxygenation or aeration of the water, redesigned spillways, or other measures, and that ongoing water quality monitoring is needed to monitor progress.

SCEG believes the D.O. noncompliance below the Stevens Creek Dam is caused by the lack of aeration or oxygenation systems in dams upstream operated by the Corps of Engineers (primarily for Lake Thurmond). SCEG points to D.O. data showing an increase in D.O. as water passes through the Stevens Creek Dam. This is because the present Stevens Creek Dam water that goes through the turbine is vented (air is added as it goes through), and because turbine water is taken from a relatively shallow part of the Creek, where natural D.O. is not as low as at deeper levels in a larger reservoir.

If after the new air-injection turbines are operating at the Lake Thurmond (also know as Clark's Hill) dam, water quality monitoring shows that additional oxygen addition is needed, EPD will seek to set up a meeting with EPA and SCEG, to determine what further D.O. improvement measures are needed.

EPD will work with EPA to set up periodic meetings with SCEG, to track progress on improvement measures, and to provide input as needed, until D.O. water quality standards for this segment are met.

In the meantime, D.O. monitoring will continue, in order to measure progress toward compliance. This is the approach recommended in the TMDL. The purpose of this process is to track progress on improvement measures, and to provide input as needed, until water quality standards for D.O. are met.

A summary of the Implementation Plan is as follows.

A. Source categories, subcategories, or individual sources which must be controlled to implement the load allocations: Lake Thurmond Dam and Stevens Creek Dam.

B. Description of regulatory or voluntary actions, intended to achieve reductions: Continued monitoring at same locations, plus work with U.S. Army Corps of Engineers and EPA to develop plan for reventing turbine blades at Lake Thurmond to allow air to be injected in water when power generation turbines in dam are operating.

C. Description of regulatory or voluntary actions, including management measures or other controls, by governments or individuals, that provide reasonable assurance that reductions will be achieved to meet water quality standards: See previous

response. Lake Thurmond aeration system design must have target of full compliance with D.O. water quality standards.

D. Schedule for implementing the management measures or other control actions as expeditiously as practicable: Will set up first meeting with EPA and COE as soon as feasible, and seek to obtain agreement on an implementation schedule as expeditiously as practicable.

E. Projected attainment date and basis for it: The projected attainment date is on or before 2006, for this Implementation Plan, but might be later, because of an injunction in a related lawsuit.

F. Measurable milestones for determining whether management measures or other control actions are being implemented: Periodic re-evaluation of D.O. data will be undertaken, to confirm or refine the projections. If an agreement is reached with the COE on a schedule, that schedule will include appropriate milestones.

G. Monitoring or modeling plan designed to measure the effectiveness of the management measures or other controls, the progress the water body is making toward attainment, and a process for implementing stronger and more effective management measures if necessary: Periodic monitoring will be conducted using the same methodology and analytical approach as before. An aeration system for the power generation turbines at Lake

Thurmond is believed to be the most effective and feasible approach for this dam.

H. The criteria to determine whether substantial progress toward attainment is being made, and if not, whether the TMDL needs to be revised: The criteria are the in-stream D.O. analyses, from samples taken at the same locations as for data collected in the past. If compliance is not achieved after the turbine venting systems are installed and operating properly, the Implementation Plan will be revised as appropriate, based on facts known at that time.

I. Goal of attaining and maintaining the applicable water quality standards within 10 years, where that is practicable: That should be accomplished, for this segment.